No. 7900057

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

SeedTec International, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *seventeen** YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SAFFLOWER

'S-541'

AMENDED CERTIFICATE

*Original grant September 11, 1980.

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington, D. C. *this* 31st *day of* January *in the year of our Lord one thousand nine hundred and ninety-one.*

Attest:

Kenneth L. Evans

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

FORM APPROVED
OMB NO. 40-R3822

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1a. TEMPORARY DESIGNATION OF VARIETY	1b. VARIETY NAME	FOR OFFICIAL USE ONLY
S-541	S-541	PV NUMBER 7900057
2. KIND NAME: Safflower	3. GENUS AND SPECIES NAME: Carthamus tinctorius L	FILING DATE 3-5-79 / TIME 9:00 A.M. P.M.
4. FAMILY NAME (BOTANICAL): Compositae (asteraceae)	5. DATE OF DETERMINATION: October 1976	FEE RECEIVED $ 500.00 $ 250.00 / DATE 3-5-79 6/10/80

6. NAME OF APPLICANT(S)	7. ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*	8. TELEPHONE AREA CODE AND NUMBER
Pacific Oilseeds Incorporated	P.O. Box 1008 Woodland, CA 95695	(916) 662-8623

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: *(Corporation, partnership, association, etc.)*	10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION	11. DATE OF INCORPORATION
Corporation	California 1954	1954

12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS:
John W. Talbott, P.O. Box 1008, Woodland, CA 95695

13. **CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:**

- [X] 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
- [X] 13B. Exhibit B, Novelty Statement.
- [X] 13C. Exhibit C, Objective Description of the Variety *(Request form from Plant Variety Protection Office.)*
- [ ] 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a). (If "Yes," answer 14B and 14C below.)* [X] YES [ ] NO JA 2/20/91

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?	14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED?
[ ] YES [ ] NO	[X] FOUNDATION [X] REGISTERED [X] CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? [ ] YES [X] NO *(If "Yes," give name of countries and dates.)*

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? [ ] YES [ ] NO *(If "Yes," give name of countries and dates.)*

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? [X] YES [ ] NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

February 8, 1979
(DATE)

John W. Talbott
(SIGNATURE OF APPLICANT)
John W. Talbott, Executive Vice President

(DATE)

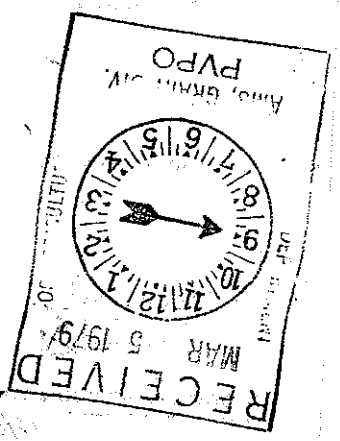
(SIGNATURE OF APPLICANT)

INSTRUCTIONS

GENERAL: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and $500 fee ($250 filing fee and $250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

5 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.



13a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.

13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.

13c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.

13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as, plant habit, plant color, disease resistance, etc.

14a If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)

15a See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.

7900057

EXHIBIT A--ORIGIN AND BREEDING HISTORY OF S-541

Pacific Oilseeds Incorporated variety S-541 was developed by pedigree selection from the following cross completed in 1969:

[(FR10 x VR 14154) selection x (A 6256 x POI-261 bc^1) selection]

A 6256--a release from Arizona State University with striped pericarp character, 1962.

POI-261--a high oil striped pericarp breeding line developed by Pacific Oilseeds Incorporated.

The F_1 of the above cross was grown in the greenhouse in 1969-1970 and F_2 segregants selected in 1970. In 1972 row 1205 was grown in the Yolo bypass for fusarium wilt screening in the F_4. Resistant plant 1205-2 was advanced to the F_5 generation as row 541 in 1973 and plants with the following characteristics were considered. (Percent of oil by NMR)

row/plant	flower bloom	flower dry-down	% oil
541-1	yellow	orange	43.8
541-2	yellow	orange	44.5
541-3	yellow	orange	45.2
541-4	yellow	orange	44.9
*541-5	yellow	orange	42.9
*541-6	yellow	orange	43.9
*541-7	yellow	orange	43.6
*541-8	yellow	orange	46.1
541-9	yellow	orange	46.3
*541-10	yellow	orange	44.7

In 1974 selfed seeds from the plants above with asterisks were planted and considered again on the basis of yellow bloom/orange dry down flower color agronomic potential and uniformity. Data considered were:

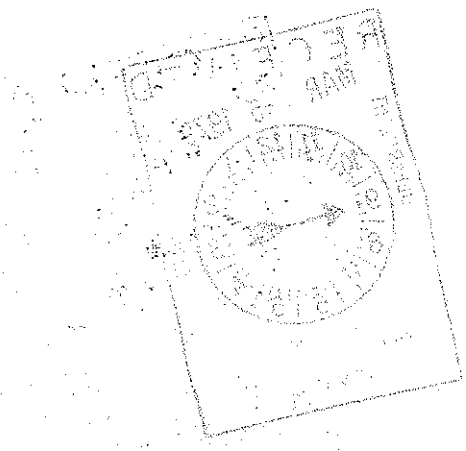
row/plant	% oil	test weight lb/bu
541-5-5	46.6	42.4
541-5-7	45.3	42.5
541-6-2	46.6	41.9
541-6-3	46.9	41.9
541-6-4	47.2	42.0
541-6-5	47.2	41.5
541-7-7	48.1	42.0
541-8-6	47.5	42.2
541-8-7	46.7	42.6
541-10-3	47.0	42.2

Selfed seed of these selected plants were grown in 1975 and the rows were bulked on the basis of uniformity and acceptable agronomic type. This bulk was yield tested and simultaneously increased in 1976 (see Exhibit B). Successful yield trial results in USDA plots at the West Side Field Station in the San Joaquin Valley of California and at the University of California at Davis have prompted further increases in 1977 and 1978. Verticillium wilt screening in USDA plots

EXHIBIT A (Continued)

in 1977 showed S-541 to be tolerant. Fusarium screening in 1978 in the Yolo bypass confirmed S-541's acceptable level of resistance. S-541 will be available in limited supply for commercial production in 1979.

TH:tb
2/8/79



PACIFIC OILSEEDS INCORPORATED

SAFFLOWER • HYBRID SORGHUM • HYBRID SUNFLOWER

916 - 662-8623
CABLE ADDRESS: POISEEDS

TELEX 171369
P. O. BOX 1008
WOODLAND, CA 95695

August 24, 1979

Mr. Joseph T. Higgins
Examiner, Plant Variety
Protection Office
USDA
National Agricultural Library Bldg.
Bettsville, MD 20705

Dear Mr. Higgins:

I have enclosed supportive data and descriptions on safflower varieties S-541 and S-742 (application numbers 7900056 and 7900057). The differences between presently protected varieties (S-317 and S-400), standard varieties, S-541 and S-742, are summarized in table form and evidenced by accompanying photographs.

In your letter of April, 1979, you asked about the reddish-orange dry down color of S-742. This is a darker orange than that of "Gila" and is unique. To my knowledge, no other varieties on the market have this shade of dry down floret. I believe the color shows up somewhat on the photographs.

With respect to determining the stability of the S-541 and S-742 genotypes, this was done by bulking advanced generation plants that were identical in flower colors, height, plant morphology, pericarp type, and oil type. No off-type plants were noted in either seed increase nor have off-type plants been noted in yield trials conducted throughout California.

Also, to the best of my knowledge, the variety "Carmex" is tested and sold only under that designation.

I believe the data presented are as accurate as possible. Of course, heights and oil contents change somewhat according to planting dates and available moisture, but, in general, differences remain relative and are apparent.

I hope you find our application is in order. Many thanks for your patience as we were awaiting the collection of materials.

Sincerely,

PACIFIC OILSEEDS INCORPORATED

Tom Heaton

Thomas C. Heaton
Research Director

TCH/cbs

enclosures

4

EXHIBIT B--NOVELTY STATEMENT ON S-541

Variety S-541 is a linoleic acid oil type safflower variety that is resistant to fusarium wilt and tolerant to phytophthora root rot when irrigated. Variety S-541 has also performed exceptionally well in yield trials in the San Joaquin Valley. S-541 showed 75% resistance to verticillium wilt in USDA screening trials in the San Joaquin Valley.

In 1975 POI realized that selections of S-541 had both high yield and high oil content surpassing our standard variety S-296 and our competitor's variety, Carmex, in oil per acre yields (Table 1). Homogenous lines were bulked and entered in USDA trials (Table 2). S-541 topped the trial in the San Joaquin Valley in oil yield and inquiries into its availability stimulated continued increase. In 1977, S-541 again topped the USDA yield trial in all three categories: yield, oil percentage, and oil per acre yield (Table 3).

S-541 most closely resembles S-317 in including appearance, having similar height and capitulum characteristics. However, it differs from S-317 in its orange dry down color and its linoleic oil composition. S-541 is distinguished from S-400 by its flower color and higher oil content (Table 6).

We feel that S-541 is a broadly adapted variety with demonstrated superiority. Seed yields should please growers and high oil and protein content with low hull content will be appreciated by oilseed processors (Table 5). We expect demand for S-541 to increase with this variety eventually replacing S-208 and S-400.

TH/cs
8/23/79

PACIFIC OILSEEDS INCORPORATED

EXHIBIT B: Yield data on S-~~742~~ 541 99RR 4/15/80 7900057

Table 1. 75-81(B) River Garden Farms, Sacramento Valley

	Yield lb/A	Oil %	Test weight lb/bu	Oil/ acre	Days to 50% bloom	Height cm
541-6-2	3576	46.6	41.9	1,666	76	74
541-5-7	3454	45.3	42.5	1,565	76	68
541-5-5	3437	46.6	42.4	1,602	76	68
541-8-7	3423	46.7	42.6	1,599	74	68
541-6-5	3412	47.2	41.5	1,610	77	68
S-296	3395	44.0	39.9	1,493	73	64
541-10-3	3338	47.0	42.2	1,569	76	66
541-8-6	3332	47.5	42.2	1,583	74	66
541-6-4	3304	47.2	42.0	1,559	76	66
Carmex	3277	44.4	40.0	1,455	75	64
541-6-3	3274	46.9	41.9	1,536	76	71

Table 2. 1976 West Side Field Station, San Joaquin Valley, USDA trial.

Entry	Yield lb/A	Oil %	Oil/A lb
Carmex	4842	42.3	2049
CW74	4747	43.5	2075
A24	4660	39.8	1855
S-317	4628	43.1	1996
S-541	4582	46.9	2150
S-400	4576	44.2	2024
Gila	4575	39.3	1799
F-25	4526	41.9	1896
CW111	4459	43.2	1929
UC1	4254	37.3	1589
VFSTP-1	4219	40.1	1692

Table 3. 1977 West Side Field Station, San Joaquin Valley, USDA trial.

Entry	Yield lb/A	Oil %	Oil/A lb
S-541	4571	46.2	2112
C112	4534	41.7	1891
CW74	4431	42.9	1901
S-400	4422	44.0	1946
Gila	4348	39.5	1717
UC1	4256	37.5	1596
VFSTP-1	4073	40.3	1641
AC1	3688	45.1	1663

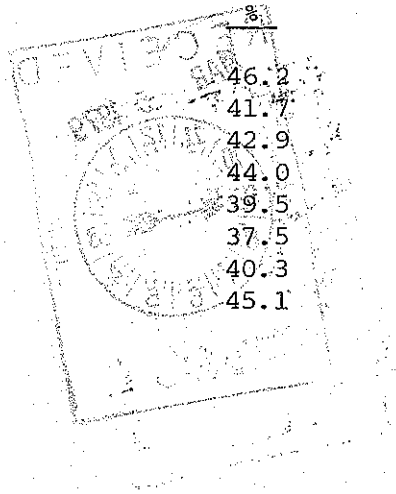


Table 4. 1978 University of California, Davis, UCD/USDA trial (irrigated).

Entry	Yield lb/A	Oil %	Oil/A lb	Test weight lb/bu
Gila	3270	35.9	1174	40.5
S-208	3197	39.0	1247	39.4
CW74	3129	39.6	1239	38.7
S-541	3122	41.4	1292	40.5
Carmex	2972	39.3	1168	39.2
UCl	2783	35.6	991	41.3

TH:tb
2/8/79

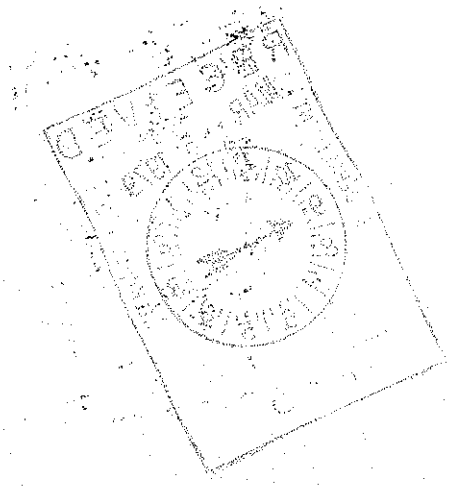


TABLE 6: COMPARISON OF SAFFLOWER VARIETAL CHARACTERISTICS

VARIETY		PLANT [a] HEIGHT (CM)	NUMBER [b] BRACTS	LENGTH BRACTS (CM)	½ LENGTH BRACT WIDTH (CM)	HEAD DIAMETER (CM)	NUMBER MAIN BRANCHES	FLOWER COLOR (BLOOM)	FLOWER COLOR (DRY)	OIL TYPE	PERICARP TYPE	OIL CONTENT [c] (%)	RUST [d]	FUSARIUM WILT (RACE 2)	VERTICILLIUM WILT	FIRST FLOWER (DAYS)
S-541	$\bar{x}$	79	20	2.8	0.9	2.6	6	yellow	orange	linoleic	gray striped	46.7	S	R	T	91
	δ	8	1	0.1	0.1	0.2	1									
S-742	$\bar{x}$	79	31	3.5	1.0	3.2	5	yellow	reddish orange	linoleic	purple striped	47.1	R	R	R	90
	δ	2	2	0.4	0.1	0.2	1									
Gila	$\bar{x}$	74	18	3.0	1.2	2.6	5	yellow	orange	linoleic	white	40.1	S	S	S	85
	δ	2	2	0.1	0.1	0.2	1									
US-10	$\bar{x}$	79	17	3.4	1.1	2.4	5	yellow	yellow	linoleic	white	41.2	S	S	S	87
	δ	2	2	0.2	0.1	0.1	1									
Frio	$\bar{x}$	81	20	3.0	1.0	2.7	6	yellow	orange	linoleic	white	42.5	S	S	S	87
	δ	2	2	0.3	0.1	0.2	1									
S-208	$\bar{x}$	81	19	3.0	0.9	2.5	7	yellow	orange	linoleic	white	43.6	S	S	T	90
	δ	2	1	0.2	0.1	0.1	1									
S-400	$\bar{x}$	81	25	3.1	1.0	2.6	6	yellow	yellow	linoleic	gray striped	43.6	S	R	T	92
	δ	2	3	0.3	0.2	0.2	1									
S-317	$\bar{x}$	81	24	2.9	0.8	2.6	5	yellow	yellow	oleic	gray striped	44.1	S	R	T	91
	δ	5	2	0.2	0.1	0.1	1									

[a] $\bar{x}$ = average of 20 observations; δ = standard deviation.

[b] all bract and head measurements were taken on primary heads.

[c] oil contents from the same location/same year.

[d] T = tolerant; R = resistant; S = susceptible.

TH/cs

Table 5. UNDECORTICATED SEED ANALYSIS*

Variety	Hull %	Protein %	Oil %	WIJS Iodine Value
S-208	34.6	12.7	41.7	145.8
S-400	32.1	13.0	43.4	143.8
S-541	30.1	14.9	44.2	141.9
S-742	31.8	13.1	45.7	141.8

FATTY ACID DISTRIBUTION ANALYSIS*

Variety	Carbon No.	14	16	16:1	18	18:1	18:2	20	20:1	22
S-208	%	.1	6.6	.1	2.3	11.1	79.2	.2	.2	.2
S-400		.1	6.8	.1	3.0	12.0	77.5	.2	.2	.2
S-541		.1	7.2	.1	2.8	14.0	75.0	.4	.3	.2
S-742		.1	7.4	.1	3.2	12.6	75.8	.4	.2	.2

Variety	Acids Saturated %	Acids Unsaturated %	Oleic Acid %	Linoleic* Acid %
S-208	9.4	90.6	11.1	79.2
S-400	10.3	89.7	12.0	77.5
S-541	10.7	89.3	14.0	75.0
S-742	11.3	88.7	12.6	75.8

*Samples from 1978 Yield trial at River Garden Farms. Analyses done by PVO/Richmond Mr. John Wood, December 1978.

1/4/79
tb

FORM GR-470-22
(2-15-73)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

FORM APPROVED. OMB NO. 40-R3712

EXHIBIT C
(Safflower)

OBJECTIVE DESCRIPTION OF VARIETY

SAFFLOWER (*CARTHAMUS TINCTORIUS*)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S)

PACIFIC OILSEEDS INCORPORATED

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)

P.O. Box 1008
Woodland, CA 95695

FOR OFFICIAL USE ONLY

PVPO NUMBER 7900057

VARIETY NAME OR TEMPORARY DESIGNATION S-541 89 W

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. MATURITY (From Emergence):

[1] Location: 1 = CALIFORNIA & ARIZONA 2 = MIDWEST

[1][2][5] NO. OF DAYS TO MATURITY

[0][0] NO. OF DAYS EARLIER THAN .... [0]

[0][3] NO. OF DAYS LATER THAN ..... [2]

1 = GILA 2 = FRIO 3 = US-10

[3] Maturity Class: 1 = EARLY (less than 110 days) 2 = MEDIUM EARLY (110 to 120 days)
3 = MEDIUM LATE (121 to 130 days) 4 = LATE (more than 130 days)

2. PLANT HEIGHT AT MATURITY:

[0][7][6] CM. HEIGHT

[0][0] CM. SHORTER THAN ..... [0]

[0][5] CM. TALLER THAN ..... [2]

1 = GILA 2 = FRIO 3 = US-10

3. FLOWER COLOR:

[0][6] Type:

	Fresh Flower	Wilted Flower
01 =	WHITE	GREYISH-WHITE
02 =	LIGHT YELLOW	GREYISH-WHITE
03 =	LIGHT-ORANGE BASE	ORANGE BASE
04 =	YELLOW	YELLOW (US-10)
05 =	YELLOW	LIGHT ORANGE BASE
06 =	YELLOW	ORANGE (Gila)
07 =	ORANGE	LIGHT RED
08 =	REDDISH ORANGE	DEEP RED
09 =	YELLOW BASE & TIPS OF LOBES ORANGE	ORANGE
10 =	PALE-YELLOW	PALE-YELLOW
11 =	OTHER (Specify)	

4. SPINES ON INVOLUCRAL BRACTS:

[2] 1 = ABSENT 2 = PRESENT

[3] Location: 1 = TIP ONLY 2 = TIP & FEW BASAL 3 = TIP & ALONG MARGINS 4 = MARGINS ONLY

[0][3] MM. LENGTH (A) [1][1] NUMBER (B) [0][3][3] SPINE INDEX (A x B)

[2] Spine Index Class: 1 = 0—20 2 = 21—40 3 = 41—60 4 = 61—80 5 = 81—100 6 = 101—120

5. HEADS (For Plant Populations of 593,000 Plants/Hectare):

[0][2][0] MM. DIAMETER (Primary Heads)

[1] Seed Shattering Percentage: 1 = 1—10 2 = 11—30 3 = OVER 30

6. SEED:

[5] Color: 1 = WHITE 2 = CREAM 3 = GRAY 4 = GRAY WITH WHITE TIP
5 = GRAY STRIPED 6 = PURPLE STRIPED 7 = BROWN STRIPED 8 = BROWN BLOTCH
9 = OTHER (Specify) _____

[3] Hull Type: 1 = NORMAL 2 = THIN-HULLED 3 = STRIPED 4 = REDUCED

[0][4] MM. WIDTH [0][7] MM. LENGTH [0][2][0] GRAMS PER 1000 SEED

7. SEEDLING VIGOR: (6 weeks after seeding at 2.5 cm. depth with ample moisture for germination; mean of 20 plants)

[1][6] NUMBER OF NODES [0][1][6] CM. TALL (Soil Surface to Tip)

7900057

S-541

FORM GR-470-22 (REVERSE)

8. COLD RESISTANCE AT DIFFERENT STAGES AND TEMPERATURES:

[3] Rosette:
[4] Bolting:
[5] Flowering:

1 = −10° C. 2 = −5° C. 3 = 0° C. 4 = 5° C. 5 = 10° C.

9. DISEASE: (0 = Not Tested; 1 = Susceptible; 2 = Resistant)

[1] RUST (Specify races) _____	[0] PHYTOPHTHORA ROOT ROT	[0] PYTHIUM ROOT ROT
[2] FUSARIUM WILT	[2] VERTICILLIUM WILT	[0] CERCOSPORA LEAF SPOT
[0] SCLEROTINA STEM ROT	[0] ALTERNARIA LEAF SPOT	[0] ALTERNARIA BUD ROT
[0] BOTRYTIS HEAD ROT	[0] RHIZOCTONIA BLIGHT	[0] BACTERIAL BLIGHT
[0] CUCUMBER MOSAIC	[0] PHYLLODY	[0] OTHER (Specify) _____

10. INSECT AND NEMATODE: (0 = Not Tested; 1 = Susceptible; 2 = Resistant)

[0] GREEN PEACH APHID	[0] LEAF-CURL PLUM APHID	[0] BLACK BEAN APHID
[0] WESTERN FLOWER THRIPS	[0] LYGUS BUGS	[0] STINKBUGS
[0] ROOT-KNOT NEMATODE	[0] OTHER (Specify) _____	

11. INDICATE A VARIETY THAT MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	VARIETY	CHARACTER	VARIETY
Frost Hardiness	S-Gila	Lodging	S-400
Seed Shattering	S-400	No. of Branches	S-317
Seedling Vigor	S-400		

12. GIVE THE FOLLOWING DATA FOR SUBMITTED AND A SIMILAR VARIETY *:

VARIETY	HULL (%)	PROTEIN (%)	OIL (%)	IODINE (%)	ACIDS SATURATED (%)	ACIDS UNSATURATED	
						OLEIC (%)	LINOLEIC (%)
Submitted S-541	30.1	14.9	44.2	141.9	10.7	14.0	75.0
Similar S-400	32.1	13.0	43.4	143.8	10.3	12.0	77.5
Name of Similar Variety	S-400						

**Hull, protein, and oil percentages expressed for whole undecorticated seed; acids expressed as percentages of oil.*

REFERENCES

1. Knowles, P.F. & M.D. Miller. 1965. Safflower. Cal. Ag. Exp. Sta. Circ. 532. 51 p.
2. Weiss, E.A. 1971. Castor, Sesame, and Safflower. Barnes & Noble, Inc. N.Y. 901 p.

Nickerson's or any recognized color fan may be used to determine plant colors of described variety.

COMMENTS:

No. 7900057

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Pacific Oilseeds Incorporated

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF seventeen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SAFFLOWER

'S-541'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington *this* 11th *day of* September *in the year of our Lord one thousand nine hundred and* eighty.

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

Secretary of Agriculture

No. 7900057

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

SeedTec International, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *Seventeen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY, AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT TY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SAFFLOWER

'S-541'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington *this* 11th *day of* September *in the year of our Lord one thousand nine hundred and* eighty.

Attest:

Kenneth A. Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

John R Block
Secretary of Agriculture